DOCUMENT RESUME

ED 089 474 EA 006 094

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TITLE	Quantitative Analysis of the Implementation of Educational Plans in Latin America.
INSTITUTION	Pittsburgh Univ., Pa. University Center for International Studies.
SPONS AGENCY	Organization of American States, Washington, D.C. Dept. of Educational Affairs.
PUB DATE	Apr 74
NOTE	34p.; Paper presented at Directors of Departments of Educational Planning of Latin American Countries Meeting (Santiago, Chile, April 22-29, 1974)
EDRS PRICE	MF-$0.75 HC-$1.85 PLUS POSTAGE
DESCRIPTORS	*Developing Nations; *Educational Planning; *Educational Research; Speeches; *Statistical Analysis; *Statistical Data
IDENTIFIERS	Latin American Countries; *Plan Implementation

ABSTRACT

This paper defines an index of plan implementation and applies it to the 1960-70 educational plans of Latin American countries. Before the index is applied, variations in the value of the index are studied, with reference to the characteristics of the departments of educational planning, and the coordination of these departments with the central organisms of socioeconomic planning and with the organisms of sectoral and regional planning of education. The study shows that lacks of statistical data and qualified personnel are the main reasons for insufficient plan implementation. (Author/JF)

ED 089474

QUANTITATIVE ANALYSIS OF THE IMPLEMENTATION OF EDUCATIONAL PLANS IN LATIN AMERICA

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The preparation of this paper was sponsored by the Department of Education of the Organization of American States. It was presented at the meeting of Directors of Departments of Educational Planning of Latin American Countries in Santiago, Chile, April 22 to 29, 1974. In addition to the OAS, the author wishes to thank UNESCO and the IIEP in Paris (in particular, Mrs. Jaqueline Schwab, director of the library) for their assistance in the collection of data with respect to the targets of the educational plans.

EA 006 091

The object of this paper is to present a statistical analysis of the degree of implementation achieved by educational plans made in Latin American countries.

With this object, an index of plan implementation is first defined. Next, the variations in the value of this index are studied, with reference to the characteristics of the Departments of Educational Planning, the coordination of these departments with the central organisms of socio-economic planning, and with the organisms of sectoral and regional planning of education. The influence on implementation of the methods used and the operations performed in the preparation of the plans is also analysed. Finally, the influence of the Department of Educational Planning on the implementation process and its impact on plan implementation will be studied.

The conceptual framework used in this analysis appears in references 1 and 2. Three sources of statistical data were used: a) the study made by the Department of Educational Affairs of the Organization of American States, "Planeamiento de la Educacion en la America Latina (Proyecto: Estudio Base, Informe Preliminar". Tabulated information on the characteristics of planning organisms in Latin American countries and their functions are presented in this paper. b) The educational plans of the Latin American countries mentioned in the Appendix. The educational targets adopted by these countries were obtained from these plans. c) Statistical publications of various international organisms that provided information on the growth of different branches of the educational system. Those most frequently used were "America in Cifras" of the O.A.S. and the Statistical Yearbooks of the United Nations and Unesco.

The O.A.S. document mentioned in a) constitutes a very valuable contribution to the analysis of planning, not only of education, and not only in Latin America. On the other hand, as is natural, it does not create an oversupply of information. In the analysis to be made below, only the fifteen observations available are used. This strongly limits the type of statistical analysis that can be made. Ideally, all the statistical analyses would

be performed within one single general linear model, making it possible to study the influence of each individual variable, and eliminating the influences of all the others. Hundreds of observations would be required for this purpose. Most of the analyses below consider only one variable at a time. One thus runs the risk of attributing to one variable the effects actually produced by another or others, or that the influence of one variable does not appear because it is obscured by the influence of other variables. The only solution for this problem is a large quantity of observations, which, hopefully, will be available in the future.

I. Index of Implementation of Educational Plans

In the construction of the index of implementation of educational plans to be used in this paper, only the desired consequences of the educational plans will be considered. This does not mean that the unlooked-for consequences of educational plans are unimportant. However, although these unintended effects might indicate whether planning is useful, they cannot be utilized to evaluate the success or failure of a plan. Below, the degree of success of an educational plan is defined as the similarity between the desired consequences and the results actually obtained. The consequences are specified in the targets of a plan, and the results are found afterwards in the statistical information of the country.

These observations indicate what is one of the most important limitations of the present paper, namely, that only quantifiable targets and results are considered. The reason for this is obvious. The available information on qualitative targets and results is not precise enough to permit a statistical analysis.

To evaluate the similarity between the quantitative targets of a plan and the quantitative results achieved, the following formula is used:

$$I_e = \frac{1}{D} \sum_{j=1}^{3} \sum_{i=1}^{N} \frac{(A_{ij}-P_{ij})^2}{P_{ij}} \times D_{ij}$$

where

I_e = index of implementation of educational plans

$D = \sum_{j=1}^{3} \sum_{i=1}^{N} D_{ij}$

N = number of educational plans

D_{ij} = period of validity of a plan i=1,...,N; for educational level j; j=1 primary education, j=2 secondary education, j=3 superior education.

P_{ij} = target rates of growth for the period of validity of the plan i=1,...,N; for educational level j, j=1,...,3

A_{ij} = achieved rates of growth during the period of validity of the plan i=1,...,n; for educational level j=1,...,3.

This index, like any instrument of measurement, cannot be justified on theoretical grounds. On the other hand, it is intuitively acceptable.

It should be noted that, according to the previous formula, both the results that fall below target levels and those above them are considered to be defects in the implementation of the plan. The value of zero corresponds to a perfect agreement between targets and results. Any deviation, whether above or below the target level, increases the value of the index. The larger the difference between targets and results, the larger the value of the index.

The reason why results both below and above the target levels are considered to be defects in the implementation of the plan is that a plan requires the optimum use of resources. If the results achieved are inferior to those planned, either a scarcity of resources or inefficient utilization of them must have occurred. If the results are superior to those planned, either there was an error in the computation of the resources available, or their planned utilization was deficient, and a better distribution of resources would have made it possible to achieve targets set even higher than those planned.

The formula presented above can be modified to show that deviations in excess of the targets are preferable to deviations below

them. No attempt was made in this paper to introduce this modification, mainly because practically all the deviations between targets and results studied here were deficiencies.

A list of the plans to be used in this paper and the periods of their validity, as well as the values of the targets for the different levels of the educational system and of the results achieved, appear in Table I-1. It will be observed in this Table and in the Appendix that both plans for socio-economic development that include chapters on education, and plans dealing only with education are considered in this paper. All these plans have, as a common period of implementation, part or all of the 10-year period between 1960 and 1970. To determine the validity of a plan, it was assumed that a later plan replaces an earlier one, and that a plan dealing specifically with education has priority over a general plan of socio-economic development for the same period.

The values obtained for the index of plan implementation appear in Table I-2. The values of the index range from a minimum of .08 for Costa Rica up to a maximum of 12.63 for Uruguay. This maximum is approximately 150 times (or 15,000%) the minimum.

II. Internal Characteristics of the Departments of Educational Planning and Plan Implementation

The following are considered as indices of the internal characteristics of a Department of Educational Planning: a) number of employees, b) number of sections in the Department divided by number of employees, c) average number of years employees have studied, and number of employees having different types of specializations.

These indices measure different aspects of the availability of human resources in educational planning. The first index is not satisfactory, because it does not take into consideration the fact that Departments of Educational Planning have, in addition to planning, other functions that make demands on their personnel. An effort is made to eliminate this problem in the second index. In it, the number of divisions within the Department of Educational Planning

TABLE I-1

Rates of Growth: Planned and Achieved

Country	Plan	Period of Validity	Education					
			1st. level		2nd. level		3rd. level	
			Pl.	Ach.	Pl.	Ach.	Pl.	Ach.
Argentina	65-69	4 years	3.850	1.796	4.550	3.833	3.056	2.433
Bolivia	62-71	1 year	21.170	-4.450	0.000	20.030	0.000	0.346
"	63-64	2 years	13.620	2.278	0.000	12.620	0.000	19.370
"	65-66	2 years	20.270	4.629	0.000	0.000	0.000	10.990
Brazil	63-65	1 year	10.940	3.878	22.940	17.430	55.990	15.760
"	64-66	4 years	6.650	6.293	9.400	13.190	13.710	16.230
"	67-76	3 years	5.680	4.348	10.680	13.420	13.630	23.990
Chile	61-70	9 years	0.000	6.332	0.000	2.610	0.000	13.460
Colombia	60-70	10 years	0.000	6.205	0.000	11.700	0.000	16.030
"	68-75	3 years	0.000	0.000	0.000	0.000	13.100	0.023
Costa Rica	65-74	4 years	0.000	4.641	0.000	2.141	0.000	16.840
"	69-72	2 years	5.154	0.000	10.930	10.640	13.830	0.000
Cuba	60-69	9 years	0.000	3.754	0.000	9.288	0.000	5.687
Ecuador	55-65	4 years	7.534	6.006	0.000	11.650	0.000	7.495
"	64-73	5 years	4.360	5.347	5.970	13.380	4.112	21.220
"	63-69	6 years	4.720	5.755	9.319	12.530	0.000	18.320
El Salvador	65-69	4 years	6.893	5.679	12.800	9.274	13.930	18.260
Guatemala	65-69	3 years	5.640	6.355	8.250	7.045	0.000	14.440
"	67-70	2 years	0.000	0.000	0.000	0.000	0.000	0.000
"	69-72	3 years	9.023	-0.745	15.790	4.841	7.641	18.560
Haiti	63-	5 years	0.000	2.803	0.000	2.021	0.000	-3.750
Honduras	65-69	5 years	6.044	8.038	12.290	13.250	0.000	11.560
Mexico			0.000	6.417	0.000	12.780	0.000	10.230
Nicaragua	65-69	5 years	9.308	5.970	5.407	12.940	22.420	22.650
Panama	63-70	7 years	0.000	4.135	0.000	6.870	0.000	11.360
Paraguay	65-66	2 years	4.553	3.045	3.329	5.317	1.888	30.620
"	67-68	2 years	5.000	3.783	4.195	10.910	2.927	6.107
Peru	62-71	5 years	0.000	7.223	0.000	14.450	0.000	20.880
"	67-70	4 years	6.310	4.408	12.140	10.270	8.210	15.030
"	65-69	4 years	5.886	6.245	10.720	10.320	9.498	21.860
Dominican Republic	68-85	2 years	4.560	7.145	0.000	16.270	0.000	35.970
Uruguay	65-74	6 years	1.858	31.610	4.281	7.424	4.061	3.951
Venezuela	63-64	2 years	5.780	2.976	9.950	9.214	15.400	10.950
"	65-68	3 years	6.067	3.310	9.936	9.274	14.120	14.440

TABLE I-2

Index of Implementation of the Educational Plans in Table I-1

Country	Index
Argentina	.66689
Bolivia	4.57357
Brazil	1.70171
Chile	n.a.
Colombia	3.61304
Costa Rica	.08772
Cuba	n.a.
Ecuador	3.70497
El Salvador	.91852
Guatemala	2.60908
Haiti	n.a.
Honduras	.60532
Mexico	n.a.
Nicaragua	1.97394
Panama	n.a.
Paraguay	8.69190
Peru	1.83386
Dominican Republic	1.21054
Trinidad and Tobago	n.a.
Uruguay	12.63232
Venezuela	.78802

n.a. not available

is used as a measure of these additional functions. Clearly, an evaluation of the time used in each of these different functions would help refine the index in b). Unfortunately, there are no data available for this purpose.

An assumption that seems acceptable at first sight is that the quality of educational plans depends more on the technical preparation of the functionaries of the Department of Educational Planning than on their number. A first approximation to the study of this hypothesis can be made by considering the average number of years spent in study by these functionaries. This information is not sufficient, because it is clear that the quality of the plans depends not only on the type of preparation of the functionaries, but also on whether they work in occupations related to the preparation that they received. These elements are considered in the analysis below.

The results in Table II-1-A show that the number of employees in the Department of Educational Planning does not influence the implementation of a plan. The negative coefficient for the number of sections per employee suggests -- despite the relatively low value of F -- that the diversity of functions of the department of planning constitutes a favorable element in the implementation of the plans.

The first conclusion that follows from the analysis of Table II-1-C is that a high proportion of employees with specializations in education and social science has a negative influence on the degree of implementation of the plans. This conclusion is reached because the coefficient of the variable EDCCS is positive, and the high value of the F coefficient is significant at a 95% level. This conclusion is reasonable because the process of preparation and implementation of an educational plan does not require knowledge of pedagogy and social science. On the other hand, the result obtained could be a consequence of the fact that the index measures the degree of success of a plan in its quantitative aspects only.

The results in II-1-C are due in part to the multicolinearity

TABLE II-1

Statistical Analysis of the Internal Characteristics of the Departments of Educational Planning

II-1-A

$$I_e = 2.019 + .061 \underset{(.225)}{\text{NUMBER}}$$

$R = .130 \qquad F_{(1,13)} = .225$

II-1-B

$$I_e = 4.763 - 3.902 \underset{(2.012)}{\text{SEC/}}$$

$R = .366 \qquad F_{(1,13)} = 2.012$

II-1-C

$$I_e = -4.534 + .404 \underset{(1.003)}{\text{YEARS}} + .290 \underset{(4.258)}{\text{EDCES}} - .127 \underset{(.574)}{\text{PLNECN}} - .269 \underset{(.632)}{\text{VAR}}$$

$R = .7017 \qquad F_{(4,10)} = 2.425$

(Table II-1 cont.)

I_e	Index of implementation of the plan
NUMBER	number of employees
SEC/EMP	Number of sections/number of employees
YEARS	Average number of years of education of employees
EDCCS	Number of employees specialized in education or social sciences
PLNECM	Number of employees specialized in economics or in planning or administrtive sciences
VAR	Number of employees with other specializations or without specialization
R	multiple coefficient of correlation
$F_{(N,D)}$	Coefficient F with (N,D) degrees of freedom

In parenthesis below the coefficients of regression: the respective coefficient F of significance.

between the variables. In order to analyse the implications of this defect in the information, it is useful to consider the following regression:

$$I_e = 5.264 - .081 \underset{(3.578)}{PLN\ ECN}$$

$$R = .46 \quad F_{(1,13)} = 3.578$$

This regression indicates that the number of functionaries with training in planning, administration and economics would probably have a more favorable impact on the implementation of the plans than regression II-1-C suggests.

III. Relationship of the Departments of Educational Planning to Other Planning Organisms

According to the information available, all the departments of educational planning in Latin America are directly coordinated with the central organisms of socio-economic planning. In consequence, it is impossible to determine statistically whether such coordination is beneficial to the implementation of the plans. Table III-1 gives the average values of the index of implementation of plans for countries that do or do not cooperate with: a) sectoral planning organisms, and b) regional planning organisms. In both cases, the averages suggest that coordination with sectoral and regional organisms improves the implementation of the plans. However, the F coefficients are not significant.

IV. The Performance of the Planning Functions:Decision-Making

The basic decisions in the educational plan are related to the three following points: first, content of a plan, for instance, whether a plan should include both qualitative and quantitative aspects, or only one or the other; second, refinement of the plan, that is, whether it should include global aspects alone or also re-

TABLE III-1

Plan Implementation and Coordination with Sectoral and Regional Organisms

	Coordination with:	
	Sectoral	Regional
Coordination exists	2.5932	1.6358
Coordination does not exist	4.2716	4.2714
F	.6861	2.4278

gional and sectoral aspects and specific projects, etc., and third, the targets of the plan.

The object of this Section is to study the implications that the technicians' influence on the determination of the targets of the plan has on whether the plan is likely to be implemented.

This is not the appropriate place to discuss in detail the problem of who should determine the targets of a plan. It should be observed that the object of every political process is the integration of the interests, aspirations and power of the members of the society in order to determine objectives for that society. The targets of a plan should be derived from these social objectives. If the technicians prefer to set the targets of a plan by themselves, it is likely that they will ignore the balance of power that supports the social objectives determined by the political process. In consequence, the targets determined by the technicians alone run the risk of not being implemented. This hypothesis is supported by the results in Table IV-1, in which it is observed that in the countries where the technicians made the decisions, the level of implementation was lower. It should be observed, however, that the F coefficient indicates that the difference between the average values of the index of implementation is not significant.

V. The Performance of the Planning Functions: The Technical Function

The object of the technical function in a planning process is to determine the resources -- human, physical, and financial -- required to achieve the targets of a plan, to verify that these resources will be available in the right places and at the right times, and to specify the administrative actions that will be required. One or several of these objectives are achieved during the period when the technical function is performed. This period will be called the period of preparation of the plan.

V-1. Use of models in the technical function

A model of the educational system is always used, either im-

TABLE IV-1

Implementation and the Influence of Technicians on the Determination of Educational Policies

	Average of the Index of Implementation
Technicians determine policies or contribute to their determination	3.380
Technicians receive policies and interpret them, only	2.531
F	.2070

plicitly or explicitly, in the performance of the technical function. This model may be very simple. For instance, it might only assume that a constant proportion of the school-age population is in the educational system. A more sophisticated model might further assume that a constant proportion of the population enters the educational system and also that constant proportions of students in one grade continue in the grades immediately following it. An even more advanced model might assume that the proportions that enter the educational system or continue from one grade to the next vary according to the quality of the professors, the level of income of the students, degree of urbanization of the population, etc.

It would be both interesting and useful to know whether the use of more sophisticated models affects the implementation of the plan. The collection of statistical data and the work required to obtain results based on sophisticated models are costly. As a consequence, these costs should be justified by the results obtained in the implementation of the plan. If the more sophisticated models are not helpful, it would be advisable to use simpler ones. Unfortunately, it is not possible to test this hypothesis with statistical information on the types of models used in Latin American educational planning, or on whether their utilization was explicit or implicit.

V-2. Statistical information for the preparation of a plan

All the models used in educational planning require statistical information. These data are usually collected by a specialized office. In Table V-1 information is presented on the relationship between the Department of Educational Planning and the specialized statistical office. This information is crossed with data on the type of educational statistics available in the Latin American countries. This Table shows that the level of aggregation of the statistical data is lower when the statistical office forms a part of the Department of Educational Planning. It is not possible to perform an X^2 test with the information in Table V-1. On the other hand, a brief revision of the data shows that this test is not required to

TABLE V-1

Relationship between the Department of Educational Planning and the Department of Statistics of the Ministry of Education

Type of information available	Dept. of Statistics dependent on the Dept. of Planning	Dept. of Statistics independent of Dept. of Planning	Average of the index of implementation of the plan
Aggregated data	Paraguay Dominican Republic	Colombia Chile Uruguay	6.5370 (4)*
Intermediate level of aggregation	Bolivia Ecuador El Salvador Honduras Mexico Peru Trinidad and Tobago	Brazil	2.2230 (6)*
Disaggregated Data	Costa Rica Guatemala Nicaragua Panama Venezuela	Argentina	1.2091 (5)*

F = 4.3765

* Number of observations

verify that the classification between dependence of the statistical office and the detail of the statistical information available are closely associated. This fact is important, because the higher the level of aggregation of the statistical data used, the higher the average value of the index of implementation of educational plans. The averages in Table V-1 show that the index of implementation is almost six times as large in the countries that use only aggregated data as in those that use disaggregated data. The F coefficient shows that the difference between these averages is significant at a 95% level of confidence. As a consequence, there is enough evidence to state that disaggregate educational statistics are required for the success of a plan, and also that a statistical office that forms a part of the Department of Educational Planning is the most useful type of organization.

V-3. Collaboration of the Department of Educational Planning with the other administrative departments for the preparation of plans

The last point to be considered in the study of the preparation of a plan is collaboration between the Department of Educational Planning and the other administrative organisms in the Ministry of Education.

The statistical analysis in Table V-2, column 1 shows that plans prepared in collaboration between organisms had a substantially lower implementation than those prepared without collaboration, and that this difference is significant at a 90% confidence level. This result is surprising. It seems reasonable to assume that, when cooperation exists between the branches of public administration and the Department of Educational Planning, the plans would have a higher probability of being implemented. An hypothesis that can be used to explain this result is that the plans that have a high degree of implementation are, as observed before, those produced by planning departments in which the personnel are specialized in planning, administration and economics. This type of personnel are not likely to have a close relationship with the rest of the employees of the

TABLE V-2

Implementation and Colaboration between the Department of Educational Planning and Other Departments of the Ministry of Education

(1)	Average of index of plan implementation (2)	Average of percent. of employees in Dept. of Planning with specialization in Admin., Planning or Economics (3)
With colaboration	4.6188	17.43
Without colaboration	1.6600	37.25
F	3.2148	4.80 *

* Significant at a .95 confidence level

Ministry of Education, whose professional backgrounds are mainly in education. As a consequence, the plans with a high degree of implementation due to their technical qualities are also the plans prepared with little contact with the rest of the Ministries of Education. On the other hand, the plans prepared by personnel that, due to their background, are likely to have good relationships with the rest of the members of the Ministry of Education are those plans that, due to technical defects, are not implemented. The statistical analysis in column 3 of Table V-2 supports the hypothesis just stated.

It is also useful to observe that Costa Rica, the country that has the best index of plan implementation, is the only country that has both a high proportion of Department of Educational Planning personnel with backgrounds in administration, planning and economics, and cooperation between the personnel in educational planning and the other departments of the Ministry of Education.

These results show that the technical capacity to prepare plans is more important than the interaction between planners and administrators. However, the data for Costa Rica suggest that the best results are obtained when both technical capacity and cooperation are present.

V-4. The final result of the technical function: the educational plan

In this Section, the impact of the different contents and refinements of educational plans on the degree of their implementation will be studied.

Table V-3 shows the result of a statistical analysis of the index of implementation of a plan when the countries are classified in two groups: a) countries with plans in which attention is mainly paid to quantitative aspects such as number of students, teachers, classrooms, etc.; and b) countries with plans in which in addition to quantitative aspects, attention is paid to qualitative aspects such as academic and administrative reforms. Table V-3 shows that plans dealing with quantitative aspects alone had a higher rate of imple-

TABLE V-3

Implementation and the Quantitative and Qualitative Contents of the Educational Plans

	Average of the index of implementation of the plans
Countries with plans that include mainly quantitative aspects	1.701
Countries with plans that include aspects of academic and administrative reform, in addition to quantitative aspects	3.651
F	1.069

mentation, as indicated by a lower average of the index of plan implementation. A possible reason for this is that better knowledge is available of the methods of planning the quantitative aspects, and when the planners concentrate on these, they can obtain better results. It is also possible that the result obtained is due to the emphasis placed on quantitative aspects in the index used to evaluate the degree of implementation of the educational plans.

Table V-4 gives the results of the statistical analysis of the index of plan implementation when the countries are divided according to whether their plans deal only with public education, or with both public and private education. This shows that the plans that include both the public and the private sectors have a more efficient implementation. In this case, an explanation is not difficult to find. The public and private educational systems actually constitute a single unit, due to the mobility of the students between one system and the other. If one of the systems does not grow in a way that satisfies the demand, pressures are created on the other system to compensate for the deficiencies of the first. This means that, if a plan deals with only the public sector, it will not take into consideration that the population will try to satisfy their preferences in the private sector when the public sector does not react in a way that they consider satisfactory.

The last aspect of the final result of the educational plans that will be studied here concerns their refinement. In the analysis presented in Table V-5, the Latin American countries are classified in three groups with respect to the criteria considered: First, countries whose plans deal only with global aspects; second, countries that, in addition to considering global aspects, include also programs; and third, countries that include in their plans in addition to global aspects and programs, specific projects. The results in Table V-5 show that the plans that include global aspects, programs and specific projects have a better rate of implementation.

One possible reason for this is that the specification of pro-

TABLE V-4

Implementation and Coverage of Public and Private Educational Sectors

	Average of implementation of the plans
Countries whose plans refer to public education only	4.110
Countries whose plans refer to both public and private education	2.105
F	1.301

TABLE V-5

Implementation and level of Refinement of the Plans

	Avergae of index of implementation of the plans
Countries with global plans only	2.936
Countreis with global plans and also projects	1.839
Countries with global plans, projects and specific programs	1.593
F	.4175

jects simplifies the administrative function with respect to the implementation of the plans. One of the criticisms frequently made of global planning is that it does not indicate the functions the public administration should perform in order to achieve the targets of the plan. This defect constitutes an obstacle for the implementation of the plans which is avoided when specific projects are included.

VI. The Performance of the Planning Functions: The Implementation of a Plan

Only two aspects will be considered with respect to the implementation of the educational plans: first, the influence that the supervision of the Department of Educational Planning has on the process of implementation and execution of the plans, and second, the control of the budget by the Department of Educational Planning.

The first point is considered in Table VI-1. According to this Table, the countries in which the Department of Educational Planning supervises the execution of the plans has a better index of implementation.

The influence of the control of the budget by the Department of Educational Planning on the degree of implementation is studied in Table VI-2. The results obtained show that implementation is more likely when there is some control of the budget by the Department of Educational Planning.

VII. Conclusions

The statistical analyses presented in this paper suggests some steps that could be used to improve the process of educational planning in Latin America. The greatest degree of attention should be given to the improvement of the statistical information used, if possible including the integration of the office in charge of col-

TABLE VI-1

Implementation and Supervision by the Department of Educational Planning

	Average of the index of implementation
untries in which the Dept. of Educational Planning supervises the implementation of the plans	1.916
Countries in which the Dept. of Educational Planning does not supervise the implementation of the plans	4.236
F	1.968

TABLE VI-2

Implementation and Budget Control

	Average of the index of implementation
Countries in which the Dept. of Educational Planning controls the budget	2.0571
Countries in which the Dept. of Educational Planning does not control the budget	3.532
F	.5984

lecting the data with the Department of Educational Planning, and in improvements in the preparation of the personnel in charge of the preparation of the plans, with emphasis on specializations in planning, administration and economics. Countries in which these two points are considered have a high probability of success in their educational plans.

Of less importance than the steps just described are: a) the coordination of the Department of Educational Planning with the regional and sectoral offices; b) the supervision of the process of implementation by the Department of Educational Planning; and c) the extension of the plan to include both public and private sectors.

Neither the results of the statistical analysis in Sections II to VI nor the conclusion presented are surprising. They confirm ideas that had been found to be acceptable before the preparation of the present paper. This is satisfactory. On the one hand, it shows that the efforts already being made will contribute to the preparation of better educational plans. On the other hand, the results presented here give validity to the process followed up to now in the analysis of educational planning. This process began with isolated observations of the method that should be followed in planning. These isolated observations were systematized, and were used to obtain the information on which the present paper is based.

This paper is only an initial step in the statistical analysis of educational planning. We hope that this type of analysis will make possible more definite conclusions with respect to the procedures that should be used in the planning process.

APPENDIX

Studies used in this paper:

ARGENTINA

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